STATEMENT OF BASIS

JAY JAY RAILROAD YARD SWMU 68
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
KENNEDY SPACE CENTER
BREVARD COUNTY, FLORIDA

PURPOSE OF STATEMENT OF BASIS

This Statement of Basis (SB) has been developed to inform and give the public an opportunity to comment on a proposed remedy to address contamination at the Jay Jay Railroad Yard (JJRY) [1]. A Kennedy Space Center (KSC) Remediation Team consisting of National Aeronautics and Space Administration (NASA), United States Environmental Protection Agency (EPA), and Florida Department of Environmental Protection (FDEP) has determined that the proposed remedy is cost effective and protective of human health and the environment. However, prior to implementation of the proposed remedy, the KSC Remediation Team would like to give an opportunity for the public to comment on the proposed remedy. At any time during the public comment period, the public may comment as explained in the "How Do You Participate" section of this SB. After the end of the public comment period, the KSC Remediation Team will review all comments and issues raised in the comments and determine if there is a need to modify the proposed remedy prior to implementation.

WHY IS A REMEDY NEEDED?

The results of the Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) indicated that petroleum hydrocarbons, polynuclear aromatic hydrocarbons (PAHs), and several inorganic compounds listed on Table 1 are present in soil along the railroad tracks, which could potentially be harmful to human health.

HOW DO YOU PARTICIPATE?

The KSC Remediation Team solicits public review and comment on this SB before implementing the proposed remedy. The remedy for the JJRY site will eventually be incorporated into the Hazardous and Solid Waste Amendments (HSWA) Permit for Kennedy Space Center (KSC).

The Proposed Remedy

The proposed remedy for JJRY site includes the following component:

- Implementation of institutional controls to prohibit residential or industrial exposure to soils in the vicinity of the railway.

The public comment period for this SB and proposed remedy will begin on the date of publication for notice of availability of the SB in major local newspapers of general circulation and end 45 days thereafter. If requested during the comment period, the KSC Remediation Team will hold a public meeting to respond to any oral comments or questions regarding the proposed remedy.

1. In accordance with RCRA §7004(b), this Statement of Basis summarizes the proposed remedy for the NASA Jay Jay Railroad Yard (JJRY) site. For detailed information on the site, consult the JJRY RFI Report, which is available for review at the information repository located at the NASA Document Library, North Brevard Library, 2121 South Hopkins Avenue, Titusville, FL 32780, telephone: (321) 264-5026.

To request a hearing or provide comments, contact the following person in writing within the 45-day comment period:

Mr. Timothy J. Bahr, P.G.
FDEP - Bureau of Waste Cleanup
2600 Blair Stone Road, MS 4535
Tallahassee, FL 32399-2400

The HSWA Permit, SB, and associated administrative file, including the RFI Report, will be available to the public for viewing and copying at:

NASA Document Library
North Brevard Library
2121 South Hopkins Avenue
Titusville, FL 32780
Telephone: (321) 264-5026

To request further information, you may contact one of the following people:

Mr. Harold Williams
Remediation Program Manager
Environmental Program Office
Mail Code: TA-C3
Kennedy Space Center, FL 32899
E-mail: harold.williams-1@ksc.nasa.gov
Telephone: (321) 867-8411

Mr. Timothy R. Woolheater, P.E.
EPA Federal Facilities Branch
Waste Management Division
Sam Nunn Atlanta Federal Center
61 Forsyth Street
Atlanta, GA 30303-8960
E-mail: woolheater.tim@epamail.epa.gov
Telephone: (404) 562-8510

Mr. Timothy J. Bahr, P.G.
FDEP-Bureau of Waste Cleanup
2600 Blair Stone Road, MS 4535
Tallahassee, FL 32399-2400
E-mail: Tim.Bahr@dep.state.fl.us
Telephone: (850) 921-9984

FACILITY DESCRIPTION

NASA established the KSC as the primary launch site for the space program. These operations have involved the use of toxic and hazardous materials. Under the RCRA and applicable HSWA permit (Permit No. FL6800014585) issued by the FDEP and/or EPA, KSC was required to perform an investigation to determine the nature and extent of contamination from Solid Waste Management Unit (SWMU) No. 68, the Jay Jay Railroad Yard (Figure 1).

SITE DESCRIPTION AND HISTORY

The JJRY site is a NASA-operated facility that includes a series of rail lines and a generator building, which houses a diesel generator and a double-walled above ground fuel storage tank. The JJRY peninsula and railroad lines were constructed in the early 1960s by FEC Railroad Company. NASA purchased the railroad yard in 1983. In 1993, several of the railroad lines were decommissioned. The generator building was constructed at the site in 1993. The JJRY site is used to convey materials to and from the KSC.

- 1996: A soil sampling event was conducted to assess potential impacts due to drum and refuse storage activities. Five soil samples were collected in the vicinity of the storage area. Results of the sampling event indicated that petroleum hydrocarbons existed above regulatory criteria.

- 1998: SWMU Site Assessment activities were conducted to evaluate impacts to site soils and groundwater. Soil and groundwater samples were collected and various metals, petroleum hydrocarbons, and polynuclear aromatic hydrocarbons were identified in site media above regulatory criteria.

- 1999-2000: A RCRA Facility Investigation was conducted. The RFI did not address the railroad tracks because the site remains an active railroad yard. The RFI included

collecting and analyzing soil/sediment, and groundwater samples. Results of these analyses were used to evaluate potential risks to human health and ecological receptors. The PRE for human health also indicated that exposure to soils would result in an unacceptable human risk if site workers were inadvertently exposed to the soil during construction activities. The ecological risk assessment (ERA) indicated that no unacceptable risk exists at the site for ecological receptors. Although thallium was detected in one site monitoring well above the GCTL, the RFI concluded that a single detection of thallium in a manmade peninsula does not warrant further consideration. Further, the detected thallium concentration in groundwater is below the applicable surface water standard (Florida Class III Surface Water Quality Criteria).

- 2001: An Interim Measure was conducted to remove approximately 90 cubic yards of PAH-contaminated soil. This excavated soil was disposed of in an off-site landfill and the excavation was backfilled with clean soil. Debris was also removed from the site in the vicinity of the excavation area.

SUMMARY OF SITE RISK

As part of the RFI activities, risk assessments were completed in accordance with KSC's Remediation Team Risk Assessment Decision Process Document (DPD). The ecological risk assessment (ERA) was performed in accordance with the eight-step process described in the EPA's "Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments", dated 1997.

Chemicals of Concern (COCs) identified for human health during the RFI included PAHs, metals, and petroleum hydrocarbons in soil (based on residential and industrial cleanup target levels).

No cancer risks or non-cancer hazards were estimated for current receptors to groundwater because of the lack of exposure pathways for any current use at the site.

The PRE showed that assuming future use of groundwater for drinking water, non-cancer risks would be unacceptable. The non-cancer hazard index (HI) for the future hypothetical resident was estimated to be 2.6, which is above the EPA and FDEP acceptable threshold of 1.0. However, since the site is located on a manmade peninsula extending approximately 2,200 ft into the Indian River, it is unlikely that future groundwater exposure pathways will exist; therefore no future risk is anticipated for site groundwater.

The PRE conducted for site soils provided an estimated excess lifetime cancer risk for the hypothetical future resident of 1.02 in 10,000, which is within EPA's acceptable range of 1 in a million to 1 in 10,000 but exceeds FDEP's acceptable level of 1 in a million. The main contaminant contributing to this cancer risk was benzo(a)pyrene. The non-cancer hazard index (HI) for the future hypothetical resident was estimated to be 5.5, which is above the EPA and FDEP acceptable threshold of 1.0. The main contaminants contributing to the HI were petroleum hydrocarbons. An interim measure was conducted to remove impacted soils that caused the unacceptable risk.

The ERA did not identify any unacceptable ecological risks.

WHAT ARE THE REMEDY OBJECTIVES AND LEVELS?

The remedial action objective (RAO) is to limit the site to use as a railroad yard and protect humans from exposure to soils by limiting its use as an industrial railroad facility where contaminant concentrations are higher than FDEP/EPA cleanup target level. Table 1 lists the COCs present in soil located along the railroad tracks at the JJRY site. Cleanup target

levels are shown for residential and industrial scenarios.

Table 1. Soil/Dry Sediment

Site-Related Chemicals of Concern (COCs)	Range of Detections (mg/kg)	Residential SCTL[1]	Industrial SCTL[1]
Arsenic	0.72 – 9	0.8	3.7
Benzo(a)pyrene	0.66 – 1.9	0.1	0.5
Benzo(b)fluoranthene	1.1 – 2.6	1.4	4.8
Thallium	.073 – 4.7	0.5	14.3
TRPH	5.1 – 1,450	340	2,500

[1] Cleanup levels are SCTLs from Florida Administrative Code 62-777, except thallium, which is based on an EPA-risk based concentration (no SCTL).

REMEDIAL ALTERNATIVES FOR THE JJRY

Because of the continued use of the site as a railroad yard, only one remedy was considered for the JJRY site.

Land Use Controls: Under this alternative, institutional controls will be implemented for site soil. The institutional controls will maintain the site use as a railroad yard to limit exposure to soils along the railroad tracks. NASA, EPA and FDEP have entered into a Memorandum of Agreement (MOA), which outlines how institutional controls will be managed at NASA.[2] The MOA requires periodic inspections, condition certification, and agency notification. The area of the site that will be under institutional control is shown on Figure 2.

EVALUATION OF REMEDY

The selected remedy was evaluated to determine if it will comply with EPA's four threshold criteria for corrective measures. The four threshold criteria for corrective measures are:

- overall protection of human health and the environment;
- attain media cleanup standards;
- control the sources of releases; and
- comply with standards for management of wastes.

Land Use Controls meet each of the threshold criteria and was determined by the KSC Remediation Team to be the best overall approach.

WHAT IMPACTS WOULD THE REMEDY HAVE ON THE LOCAL COMMUNITY?

There would be no impacts to the local community because the administrative actions will maintain the site as a railroad yard.

2. By separate MOA effective February 23, 2001, with the EPA and FDEP, KSC, on behalf of NASA, agreed to implement Center-wide, certain periodic site inspections, condition certification, and agency notification procedures designed to ensure the maintenance by Center personnel of any site-specific LUCs deemed necessary for future protection of human health and the environment. A fundamental premise underlying execution of that agreement was that through the Center's substantial good faith compliance with the procedures called for herein, reasonable assurances would be provided to EPA and FDEP as to the permanency of those remedies which included the use of specific LUCs.

Although the terms and conditions of the MOA are not specifically incorporated or made enforceable herein by reference, it is understood and agreed by NASA KSC, EPA and FDEP that the contemplated permanence of the remedy reflected herein shall be dependent upon the Center's substantial good faith compliance with the specific LUC maintenance commitments reflected herein. Should such compliance not occur or should the MOA be terminated, it is understood that the protectiveness of the remedy concurred in may be reconsidered and that additional measures may need to be taken to adequately ensure necessary future protection of human health and the environment.

WHY DOES THE KSC REMEDIATION TEAM RECOMMEND THIS REMEDY?

The team recommends the proposed remedy because the institutional controls will prevent exposure to contaminants based on the premise that the JJRY will remain a railroad yard. The proposed remedy meets the four general standards for corrective measures and was determined to be the best overall approach.

NEXT STEPS

The KSC Remediation Team will review all comments on this SB to determine if the proposed remedy needs modification prior to implementation and prior to incorporating the proposed remedy into KSC's HSWA permit. If the proposed remedy is determined to be appropriate for implementation, then a long term monitoring program will be initiated, and a Land Use Control Implementation Plan will be developed to incorporate the institutional controls at this site.

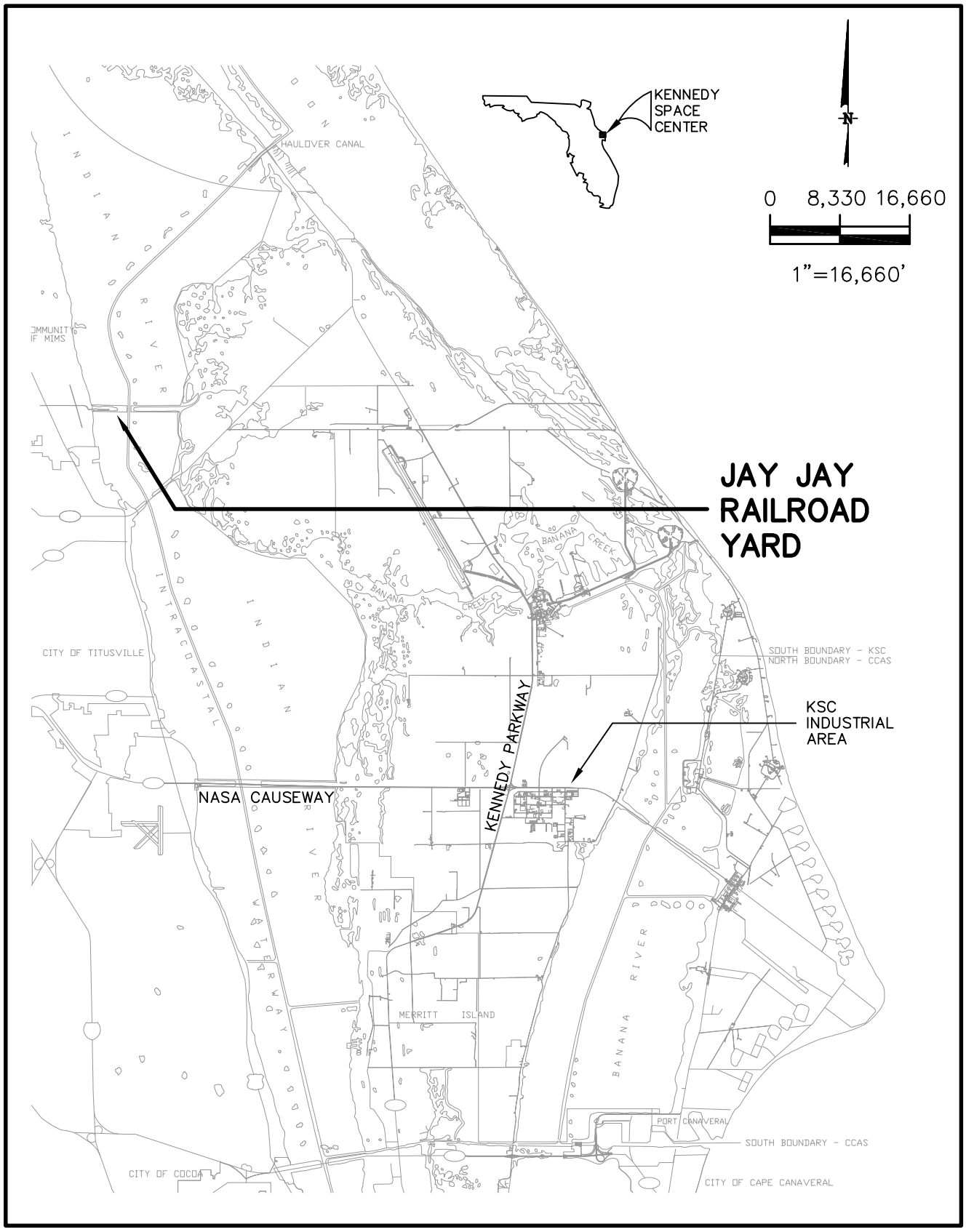
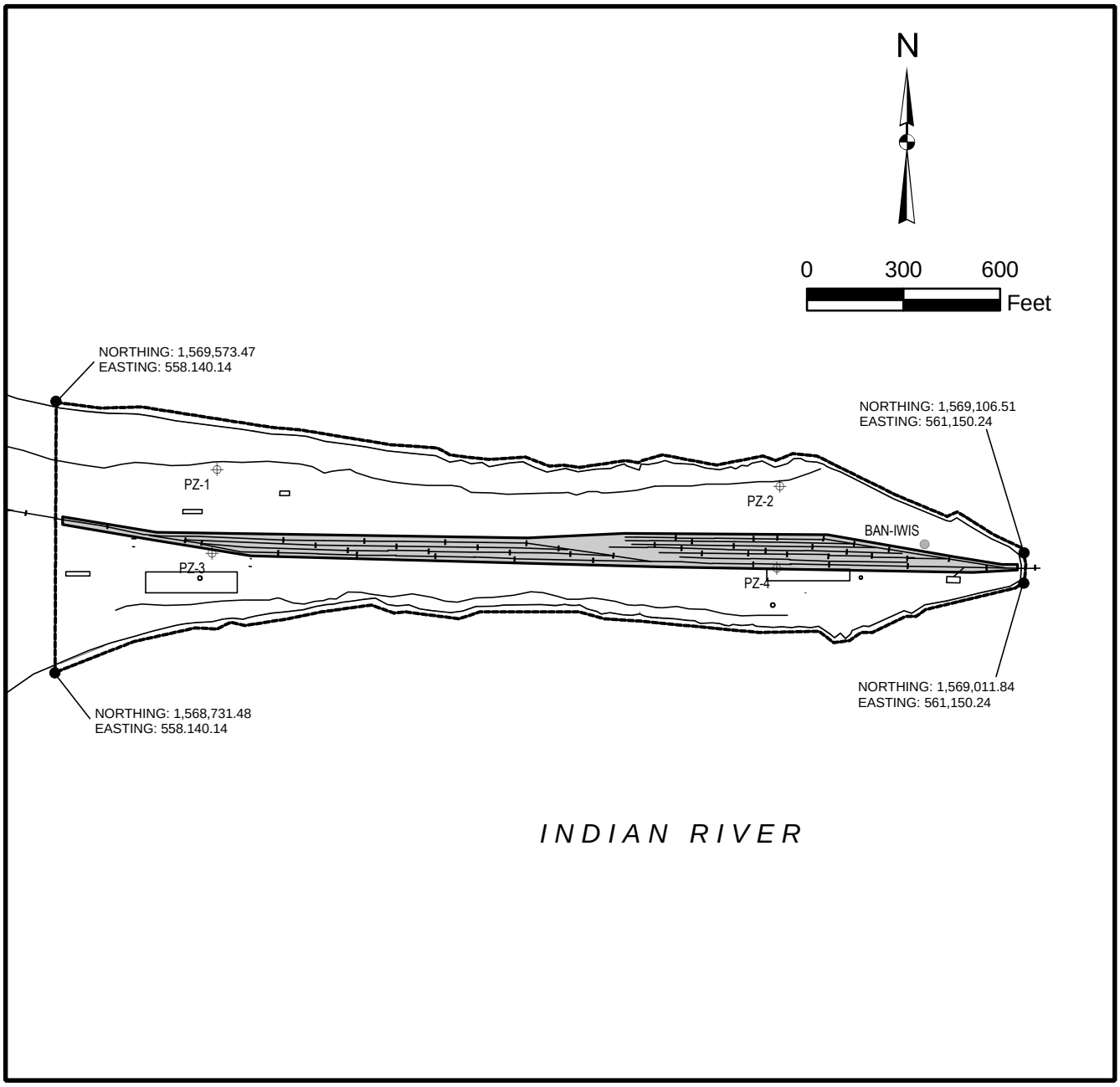


FIGURE 1

KENNEDY SPACE CENTER
JAY JAY RAILROAD YARD SITE LOCATION MAP

157F01.DWG



MAP PROJECTION: North American Datum 1927, Florida East (Zone 901)

LEGEND

- Monitoring Well Location
- Piezometer Location
- Basemap
- Boundary of Statement of Basis
- Boundary of Soil Use Control

Notes:

1. Boundary of Statement of Basis is identified with the shoreline. Soil use control area is identified as the shaded area.

2. Land Use Control for the site soils will be limited to property in the immediate vicinity of the rail lines.

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FIGURE 2

KENNEDY SPACE CENTER
JAY JAY RAILROAD YARD SITE MAP